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**NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER**

BASIC
IMAGERY
INTERPRETATION
REPORT

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DMITROV MISSILE PROPULSION RESEARCH AND DEVELOPMENT FACILITY (S)

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**STRATEGIC WEAPONS INDUSTRIAL FACILITIES
USSR
MAY 1979**

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RCA-09/0013/79

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INSTALLATION OR ACTIVITY NAME				COUNTRY	
Dmitrov Missile Propulsion Research and Development Facility				UR	
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	56-25-40N 037-28-00E	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
MAP REFERENCE					
SAC. USATC, Series 200, Sheet 0154-23, scale 1:200,000					
LATEST IMAGERY USED			NEGATION DATE (If required)		
See "ABSTRACT"			NA		

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ABSTRACT

1. (TSR) This report describes developments observed at Dmitrov Missile Propulsion Research and Development Facility, USSR, from [REDACTED] the information cutoff date. Significant expansion of the facility indicates that missile propulsion system design, development, and testing is not only continuing but that additional work on new or modified missile systems/subsystems is planned. The identification of SA-5 missile canisters, SA-5 missile support equipment, and associated electronics vans at the facility during this reporting period indicates that the Dmitrov Facility is involved in making improvements to surface-to-air missile systems. This report updates NPIC report [REDACTED]

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2. (U) Included in this report are a location map, three annotated photographs, and three tables of mensural and chronological data.

INTRODUCTION

3. (TSR) Dmitrov Missile Propulsion Research and Development Facility is on the east side of the Moscow Canal, 24 nautical miles (nm) west of the Zagorsk Rocket Engine Test Facility Krasnozavodsk [REDACTED] and approximately 40 nm north of downtown Moscow (Figure 1). The Dmitrov Facility is served by the Moscow/Dmitrov/Leningrad rail line and is probably associated with a number of missile research, development, and production plants in the Moscow and Leningrad areas.

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4. (TSR) The variety of test positions and a high percentage of administration and engineering floorspace at Dmitrov indicate that the facility may include a missile propulsion design bureau or scientific research institute.¹ The facility is primarily involved in the developmental testing of small rocket engine propulsion systems. The eight test positions at the facility are contained in two test buildings. The positions are small and may be limited to the testing of vernier engines for missile attitude control or small engines or components for surface-to-air, air-to-surface, and/or tactical surface-to-surface missiles. The presence of a blower house and an effluent treatment system in the test area gives the facility the capability of testing with toxic propellants. Most of the test positions were probably operational by mid-1972.

5. [REDACTED] SA-5 equipment was identified at the facility in September 1974. This was the first identification of any missile-associated equipment at the facility. The timing of the completion of the test positions and the subsequent appearance of SA-5 equipment and SAM-associated electronics vans indicate that the facility has probably been involved in the development and testing of modifications and product improvements for the SA-5 system since 1972.

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(SSMTC; [REDACTED] indicates that an SA-5 developmental flight test program has continued well beyond the initial operational capability and deployment of the system.² In view of advancing technologies and changing defense requirements, it is likely that the SA-5 has been, as was the SA-2 before it, continuously modified and improved. Modifications and improvements of the SA-2 system have occurred over a period of about two decades and have resulted in many significant changes. These include increased target and missile tracking accuracy, the addition of electronic counter-countermeasure (ECCM) features, and the addition of a moving target indicator system for tracking aircraft protected by chaff or rain clutter and for tracking at low altitudes. Other changes resulted in an increased radar range and acquisition capability, increased missile propulsion system performance, and a more effective warhead fuse system.³ The Dmitrov and Sary-Shagan facilities have probably been involved in the development and testing of similar improvements for the SA-5 system. Two 20-foot parabolic dish antennas, first identified in the administration/engineering area of the Dmitrov Facility on [REDACTED] have probably been used to subject the entire SA-5 missile or at least guidance components of the missile to a variety of radio frequencies for testing purposes.

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BASIC DESCRIPTION

6. (TSR) The Dmitrov Missile Propulsion Research and Development Facility has been expanded at an average rate of about 8 percent per year for a total increase in completed floor-space of 36 percent since the previous reporting period (see inset tables on Figures 1, 2, and 3). This rate of expansion indicates that plans are probably underway to design, develop, and test additional new and modified propulsion systems at this facility. The additions may also reflect special requirements of a variety of other missile-associated test programs. The completion dates (see inset tables) for significant additions to the facility may be an indication of the approximate starting dates for developmental testing of new or modified missile systems or components.

7. (TSR) The Dmitrov Missile Propulsion Research and Development Facility comprises three functional areas: a test area, a storage area, and an administration/engineering area. During the reporting period, 16,099 square meters of new floorspace were completed and 436 square meters were razed. As of [REDACTED] the facility contained 60,046 square meters of completed floorspace.*

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Test Area

8. (TSR) Most of the new floorspace completed during the reporting period is in the test area (Figure 1). The control building (item 6) for test building 2 was externally complete when observed in June 1975. Since tests probably occurred at test building 2 as early as July 1973, the control building for test building 1 may have served both of the test buildings prior to mid-1975.

9. (TSR) A possible test building (item 4), constructed between July 1972 and May 1978, is 22 by 18 meters and has a circular structure in the center. The circular structure has a diameter of 7 meters and extends above the roof of the building. This building is near two small probable solid propellant storage buildings and two buildings served by overhead pipe galleries. It is not known whether the building will be involved in the testing of liquid or solid propellant propulsion systems.

10. (TSR) In addition to the control building and the possible test building with the circular structure in the center, another possible test building (item 110), two engineering/shop buildings (items 108 and 109), and one support building (item 111) were completed. A total of 5,960 square meters of new floorspace was completed in the test area during this reporting period. The two new engineering/shop buildings accounted for most of this new floorspace. An unidentified structure (item 2), thought to be a building under construction in the previous reporting period, remained unchanged.

11. (TSR) A possible missile-associated canister, [REDACTED] was seen in the test area on [REDACTED] Figure 1). It was near the largest of four barricaded probable solid propellant storage buildings. No other missile-associated components or equipment have been identified in the test area. However, the presence of SA-5 equipment in the administration/engineering area of the facility indicates an involvement in modifications to the SA-5 missile system.

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12. (TSR) The variety and relatively small size of the eight test positions at the facility imply that a number of low-thrust systems are being tested; these may include vernier engines, gas generators, or other small rocket engines or components. The presence of a blower house and an effluent treatment system indicate that the facility has the capability to use toxic propellants. Extensive overhead pipe galleries indicate that the facility is primarily involved in the design and testing of liquid propulsion systems, but the presence of four barricaded explosives storage buildings suggests an association with solid propellants as well.

13. [REDACTED] The identification of SA-5 equipment in the administration/engineering area in September 1974 strongly suggests that the facility is involved in modifications to the two-stage SA-5 (GAMMON) missile system. The SA-5 sustainer engine employs a liquid, bipropellant propulsion system probably using inhibited red fuming nitric acid (IRFNA) for the oxidizer and unsymmetrical dimethylhydrazine (UDMH) or an amine combination with IRFNA for the fuel.⁴ The SA-5 propulsion system also includes four strap-on boosters which are filled with solid double-base propellant grain. An effort is probably underway at the Dmitrov Facility to increase the performance of the SA-5 missile propulsion system. [REDACTED]

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[REDACTED] The timing of the completion of the eight test positions at the Dmitrov Facility correlates to the collateral information concerning the development of a new version of the SA-5 missile in the early 1970s.

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*In the previous report,¹ the total floorspace figure included floorspace under construction.

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Item	Description	Dimensions (m)			Floorspace (sq m)	First Seen		Remarks
		L	W	H		Ucon	Complete	
1	Support bldg	22	14	8	308	Sep 63	Jun 75	Structure has 3 walls & no roof; in previous report, it was thought to be bldg ucon
2	Unid structure	109	75	—	—	Jul 68	—	
4	Poss test bldg	22	18	5	396	Jul 72	May 78	Circular structure 7 meters in diam in center of rectangular bldg
6	Control bldg	19	16	9	304	Jan 72	Jun 75	3-story, H-shaped bldg Served by overhead pipe gallery
108	Engr/shop bldg	37	14	8	518	Sep 76	Jul 77	
109	Engr/shop bldg	48	28	17	4,032	Jun 75	Jul 77	
110	Poss test bldg	34	9	—	306	Sep 74	May 78	
111	Support bldg	12	8	—	96	May 78	May 78	



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Storage Area

14. (TSR) The storage area (Figure 2) is the oldest area of the facility. Expansion of the storage area during this reporting period included the construction of six new metal storage buildings (items 112 through 117) and two wooden support sheds (items 118 and 119). These buildings added 1,800 square meters of new storage floorspace. A number of unidentified objects have been observed in the storage area, but none have been associated with any particular missile-associated test article.

Administration/Engineering Area

15. (TSR) Additions to the administration/engineering area (Figure 3) during the reporting period included the completion of a fabrication/engineering building (item 48) and a probable administration building (item 66); construction on both buildings was begun during the previous reporting period. Three new storage buildings (items 121, 122, and 123) and a garage (item 124) were constructed and a metal storage shed was replaced by a wooden building (item 125) next to two parabolic dish antennas. A probable building foundation (item 120) was first observed in July 1977, but no progress was noted after that time. A total of 8,339 square meters of completed floorspace has been added to the administration/engineering area since [redacted]. In addition, three apartment buildings and a probable school, totalling 14,576 square meters of floorspace, were constructed outside the fence-secured administration/engineering area.

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16. (TSR) The major function of the administration/engineering area is probably the design and development of missile propulsion systems. The administration/engineering area also has a limited fabrication/assembly capability. During the current reporting period, testing of the SA-5 missile or its guidance package in a simulated electronic-counter-measure (ECM) environment was probably conducted in this area.

17. (TSR) The presence of SA-5 canisters, launchers, handling dollies, and canvas-covered probable missile transporters in a wall-secured missile support equipment (MSE) storage yard within the administration/engineering area suggests that compatibility testing of the SA-5 missile with SA-5 MSE has been accomplished in this area. A section of rail line in the MSE yard simulates dolly rails at SA-5 launch sites. Perhaps new designs or engineering changes in the SA-5 guidance package or propulsion system resulted in slight external changes to the missile, requiring new checkout testing with the MSE. Evidence of external changes to the SA-5 missile was observed on imagery of [redacted]. On that date, two modified SA-5 canisters were identified for the first time at a deployed SA-5 complex, Tapa SAM Complex A 32-5 [redacted]. The modified SA-5 canisters were [redacted] long as compared to [redacted] for the other 34 standard SA-5 canisters seen in the same storage area.

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18. [redacted] In addition to possible physical changes to the SA-5 missile, system performance improvements have also been noted. The original SA-5 system, developed during the early 1960s, was a long-range SAM for use against aerodynamic vehicles, assessed to be capable of intercepts at a range of no more than 100 nm. However, telemetry acquired from SA-5 tests at the SSMTC in the early 1970s revealed intercepts at ranges of about 150 nm.⁶

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Item	Description	Dimensions (m)			Floorspace (sq m)	First Seen	
		L	W	H		Ucon	Complete
112	Stor bldg	33	11	6	363	Sep 74	Jun 75
113	Stor bldg	30	11	5	330	May 78	Aug 78
114	Stor bldg	21	7	4	147	Jul 77	Jul 77
115	Stor bldg	21	7	4	147	Sep 76	Sep 76
116	Stor bldg	21	7	4	147	May 78	Aug 78
117	Stor bldg	30	11	6	330	Aug 77	Aug 77
118	Support shed	12	7	4	84	Jul 77	Jul 77
119	Support shed	21	12	4	252	Nov 78	Nov 78

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Item	Description	Dimensions (m)			Floorspace (sq m)	First Seen		Remarks
		L	W	H		Ucon	Complete	
48	Fab/engr bldg	48	16	12	2,304	Jul 72	Jun 75	3 stories
a	Engr sec	31	19	10	589			High bay in center
b	Fab sec	21	19	30	3,591	Jun 74	Jun 75	9 stories; fence previously
66	Prob admin bldg							around the bldg was removed
								No progress since Jul 77
120	Prob bldg foundation	61	12	—	—	Jul 77		
121	Stor bldg	30	12	4	353	Jun 75	Jun 75	
122	Stor bldg	34	10	5	340	Jul 77	Aug 77	
123	Stor bldg	39	7	4	273	Jul 77	Aug 77	
124	Garage	49	9	5	441	Sep 76	Aug 78	
125	Wooden bldg	32	14	4	448	Jun 75	Jun 75	Replaced a metal stor shed (item 35 in previous report')

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REFERENCES

IMAGERY

(TSR) All relevant KEYHOLE imagery acquired from [redacted] the 25X1
information cutoff date, was used in the preparation of this report.

MAPS OR CHARTS

SAC. US Air Target Chart, Series 200, Sheet 0154-23, scale 1:200,000 (UNCLASSIFIED)

DOCUMENTS

- 1. NPIC. [redacted] RCA-09/0019/75, *Dmitrov Missile Propulsion Research and Development Facility*, Oct 74 25X1
(TOP SECRET [redacted]) 25X1
- 2. CIA/OWI. Cable 70771, *Supplement to the Daily Weapons Intelligence Summary NR NIO-76*, 10 Feb 76 (TOP SECRET [redacted]) 25X1
- 3. DIA. AMA-10607-03-001-76, *Technical Systems Report, SA-2 G-Band SAM*, p 1, Jun 76 (SECRET)
- 4. CIA. OWI-STIR [redacted] Scientific and Technical Intelligence Report, *The Soviet SA-5 Surface-to-Air Missile System*, Feb 74 (TOP SECRET [redacted]) 25X1
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[redacted] 25X1

- 6. DIA. [redacted] *Special Defense Intelligence Estimate*, 12 Sep 73 (TOP SECRET [redacted]) 25X1

[redacted] 25X1

REQUIREMENT

COMIREX J02
Project 290062DJ

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Soviet 25X1
Strategic Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1

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